

MISSOURI CONSERVATIONIST

VOLUME 83, ISSUE 8, AUGUST 2022
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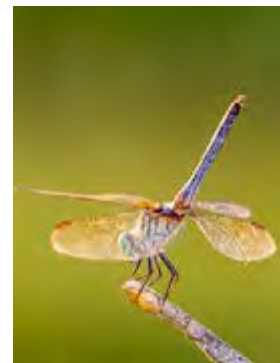
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Common buckeye

MISSOURI CONSERVATIONIST



ON THE COVER

Blue Dasher

📷 **NOPPADOL PAOTHONG**

400mm lens, f/4.5
1/250 sec, ISO 800

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Inbox



Letters to the Editor

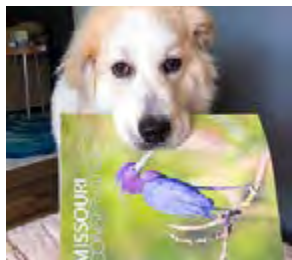
Submissions reflect readers' opinions and may be edited for length and clarity. Email Magazine@mdc.mo.gov or write to us:

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TWO PAWS UP

Here is Quinn, my rescued foster dog, taking her reading material to bed.

Amy Morris
Strafford



BIRD OF A LIFETIME

For years, I have fed birds in hopes of seeing a special one. Recently, that dream was fulfilled. I saw a flash of red outside my window. When I looked out, there was the bird of my dreams — a pileated woodpecker in my maple tree!

What's so special? I'm 84-years-old, and my parents had a cabin in Arkansas on Bull Shoals Lake. I had heard the woodpecker, but never did see it.

I enjoy the magazine so much. I have taken it for years. Thank you.

Rita Lentz Nevada

BIRDS AND DOGS AND BEARS — OH MY

The little blue heron on the front cover of the May issue was so cute!

The story of Sara Parker Pauley and the dog she lost was so sad and touching [*Up Front*, Page 3]. I had a squirrel dog that was so special it brought back memories of him. He was the best squirrel dog I ever had.

And that black bear — wow he's big [*In Brief*, Page 5]! I have seen two young bears on my morning walks, but hope I never meet one that big! Thank you for your beautiful magazine each month.

Effie Buttrey Bell City



THANK YOU FROM A BUDDING ARTIST

My son wanted to say thank you for giving him a free magazine every month. He is 6 years old and autistic and enjoys it so much he drew the front cover.

Erica Wright via email

FROM A LONGTIME READER

I have received the magazine since I was a teenager, and I am now 80 years old. It has been a wonderful magazine over the years. The photography and the articles are great. I especially like the recent article on poison ivy [*Poison Ivy*, June, Page 10] and fishing spots in Missouri [*Your Summer Highlight Reel*, June, Page 22]. Keep up the great work.

Jerry Courtney Bolivar

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The Missouri Department of Conservation protects and manages the fish, forest, and wildlife of the state. We facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources.



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or email Readerphoto@mdc.mo.gov.



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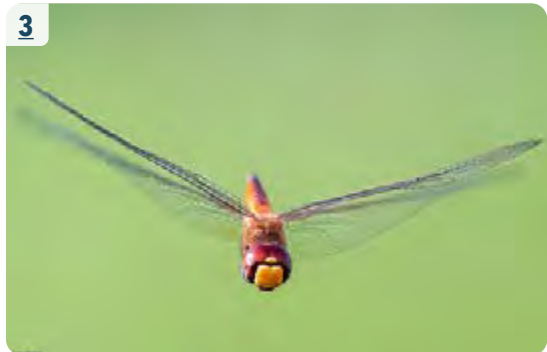
1 | Bluegill by
David Bice,
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2 | Spider lily by
Kathy Bildner,
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3 | Wandering
glider dragonfly
by Thomas
Swartz, via Flickr



2



3



Want another chance to see your photos in the magazine?

➔ In the December issue, we plan to feature even more great reader photos. Use the submission methods above to send us your best year-round pictures of native Missouri wildlife, flora, natural scenery, and friends and family engaged in outdoor activities. Please include where the photo was taken and what it depicts.

TAYLOR LYNN PHOTOGRAPHY



Up Front

with Sara Parker Pauley

✱ In the late summer evenings at Granny Elma's house, as the whip-poor-wills commenced their sunset sonnets and the end of a day's work in the garden meant a reprieve until dawn, I'd often leaf through outdated copies of the *Old Farmer's Almanac* for entertainment. Chock full of tidbits about the weather, moon phases, gardening tips, and much more, I was drawn to the nuggets of wisdom about nature, her bounty, rhythms, and signs.

Founded in 1792 by Robert B. Thomas, the *Old Farmer's Almanac* stakes its claim as the oldest continuously published periodical in North America. There are plenty of other published almanacs, and most by their content paint a picture of the coming year, of the predictability and yet elaborateness that Mother Nature offers to those who hunger to know her better. MDC's *Natural Events* calendar, magnetized to my refrigerator, serves as another type of almanac, reminding me that the flowers I see blooming outside — wild bergamot, butterfly weed, and purple prairie flower — will be center stage same time next year, as will robins, bluebirds, warblers, and monarchs.

The beauty of these treatises is that they also inspire us to get out and enjoy nature's mysteries upfront and personally. This month's issue helps us transition to fall and all the magic that awaits us there (read more on the *Fall and Winter Hunter's Almanac* on Page 23). It will take our lifetimes to even begin to comprehend the cyclical mysteries of nature, so get your favorite outdoor almanac and head for the great outdoors. Class is in session!

Sara Parker Pauley

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Nature LAB

by Dianne Van Dien

Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

RESOURCE SCIENCE

Lean Flatsedge Restoration

✳ Although more common in Oklahoma, Texas, New Mexico, and Kansas, lean flatsedge (*Cyperus setiger*) has been documented only a few times in Missouri. It was first found in 1915 in Jackson County, then not seen again until 1995 in Boone County. In 2019 another small population was discovered at Tucker Prairie in Callaway County.

“When lean flatsedge was discovered in 1995,” says State Botanist Malissa Briggler, “it was the only known population in Missouri and it was in a tricky place to manage because it was in a ditch off I-70.”

Maintaining the diversity of plants and animals in the state is one of MDC’s priorities, so the department reached out to the Missouri Department of Transportation (MODOT) about the lean flatsedge along the interstate.

“MODOT was very cooperative in helping us,” says Briggler. “We asked them to only mow at certain times, and that helped the population to flourish.”

Because future highway needs could put these plants in harm’s way, MDC scientists took action to



Lean flatsedge (*Cyperus setiger*) is rare in Missouri. MDC staff are establishing a new population at Prairie Fork Conservation Area. To the untrained eye, sedges look like grasses. But unlike grasses, which have round stems, the stems of sedges are triangular with distinctive edges.

MDC
scientists
move rare
sedge from
roadside to
conservation
area

establish lean flatsedge in other locations, but those early attempts were not successful. Then in 2015, MDC began a new project to relocate lean flatsedge to Prairie Fork Conservation Area (CA). Researchers dug up rhizomes (underground root-like stems) from the I-70 plants, propagated them in a greenhouse, and planted the sedges in three locations at Prairie Fork CA. The process was repeated three years in a row.

About 50 percent of the transplants have survived and those plants are spreading outward. “It’s getting difficult to tell the individual plants now and who started where because they’ve expanded so much,” Briggler says. And this is good news — it means the new population is off to a strong start.

Lean Flatsedge Restoration at a Glance

Objective:

Establish a population of lean flatsedge at Prairie Fork Conservation Area from rhizomes gathered from the site along I-70.

MDC Partners:

MODOT, Lincoln University

Methods:

- Rhizomes are dug up in clumps, washed, and separated.
- Rhizomes are planted in cone containers and grown in a greenhouse.
- Rhizomes are planted in the fall and the location of each is marked with a nail.
- Staff monitor plant growth and use a metal detector to find locations of nails where plants did not grow.



Before they are transplanted, lean flatsedge rhizomes are separated and grown in cone containers, which make the rhizomes grow downward and deep.

In Brief

News and updates from MDC



Learn more about DMAP from the June 2022 *Missouri Conservationist* feature article, *Managing the Herd*, online at short.mdc.mo.gov/45a.

MDC HELPS LANDOWNERS MANAGE DEER

DEER MANAGEMENT ASSISTANCE PROGRAM OFFERS ADDITIONAL PERMITS TO QUALIFYING APPLICANTS

➔ MDC's Deer Management Assistance Program (DMAP) can help landowners manage deer on their properties by allowing them and hunters they designate to buy additional firearms permits to take antlerless deer on the properties above and beyond regular season harvest limits.

"For some landowners, deer cause crop damage and other problems, even with deer removals through regular hunting seasons and damage authorizations," said MDC Deer Biologist Kevyn Wiskirchen, who coordinates DMAP. "And some landowners need additional tools for achieving their deer management goals for their properties. The program's main goal is to maintain healthy deer populations while balancing landowner needs."

Wiskirchen added that any private property of at least 500 acres located outside of municipal boundaries, regardless of the owner's legal residence, is eligible for the program. For properties inside the boundaries of a city or town, at least 40 acres are required. Individual parcels of land, regardless of ownership, may be combined to satisfy the acreage requirements as long as no parcel of land is more than a half-mile (by air) from the boundary of another parcel being combined to form an enrolled DMAP property.

DMAP also provides landowners with science-based methods and information to address a spectrum of other local deer management goals, including Quality Deer Management objectives.

To learn more about DMAP, including enrollment, visit MDC online at mdc.mo.gov/dmap, or contact your local MDC private land conservationist or conservation agent.

Ask MDC

Got a Question for Ask MDC?

Send it to AskMDC@mdc.mo.gov
or call 573-522-4115, ext. 3848.

Q: What is this plant?

➔ This Missouri native species is called buttonbush (*Cephalanthus occidentalis*). Always near water, this plant prefers swamps, sloughs, oxbows, bottomland forests, streambanks, marshes, ponds, and lakes. The seeds are eaten by ducks — especially wood ducks — and pheasants.

A food-plant for bees, hummingbirds, and butterflies, buttonbush can stabilize pond banks and be cultivated as an ornamental. Gardeners can use this plant in woodland gardens, rain gardens, and the edges of ponds. This plant tolerates erosion and wet soil. For more information, visit short.mdc.mo.gov/45F.



Buttonbush

Q: I was given a bat house, and I want to put it in a place that's good for bats but that's also okay for my neighbors. Any suggestions?

➔ Bats are losing habitat around the world, and a bat box offers them a restful place to sleep.

It's best to place the bat box either on a building or on a pole. Tree trunks are not good places to mount bat boxes because they leave these small, flying mammals vulnerable to predators like owls, hawks, and snakes. A spot 20 to 30 feet away from the nearest trees is recommended.

The perfect height is about 15 to 20 feet above the ground. Bats find it challenging to take off from a stationary position and need to drop and glide to take flight. A bat house placed on a building beneath the eaves works well because it offers lots of clearance for the bat to glide and it helps moderate the temperatures of the chamber. A rocket box — a four-sided chamber that mimics a tree's peeling bark — works well on a pole and a traditional bat box with three to four chambers is ideally situated on a building.

In Missouri, the best color to paint your bat box is medium gray. Water-based, exterior-grade paints are preferred, and oil-based paints or stains should be avoided.

Finally, choose a location that receives at least six hours of daily sun exposure and is within a quarter mile of a water source.

For additional tips on how to install a bat house, visit batcon.org/about-bats/bat-houses.



Rocket box bat house



Big brown bat



Woodchuck

Q: Do groundhogs (woodchucks) begin hibernating suddenly? Or is it a gradual thing?

➔ Woodchucks are true hibernators, but the process is gradual.

As the autumn days shorten and become cooler, woodchucks remain out of their dens for progressively briefer periods of time. The fattest and oldest adults gradually become less active and start to hibernate first. Lean adults and young animals

are abroad latest in the fall. By the end of October or mid-November, most woodchucks are curled up asleep in their underground nests.

Woodchucks begin to emerge from hibernation as early as the first week of February, but severe cold may delay them. At first, they come out only for short periods, but as the days warm, they spend a correspondingly longer time above ground.



Shannon Smith

SCHUYLER AND SCOTLAND
COUNTIES CONSERVATION
AGENT CORPORAL

offers this month's

**AGENT
ADVICE**

With fall hunting season approaching, shooting ranges may see an uptick in attendance as hunters prepare for their respective opening days. Whether you're visiting a public or private range, safety is of utmost importance. Always keep your firearm pointed in a safe direction and keep the muzzle pointed downrange. Never shoot at anything that is not your intended target. Be certain there is a proper backstop behind your target, such as a dirt berm, pond dam, or ditch. This will ensure the bullets don't stray or ricochet. Keep in mind: a bullet fired from a 22-caliber rifle can travel over a mile. Larger calibers can travel up to four miles, which is why having a good backstop is imperative.

**What
IS it?**

Can you guess this month's natural wonder?

*The answer is on
Page 9.*





WILD TURKEY DROPPED-BISCUIT PIE

As summer temperatures give way to crisp fall days and cooler nights, we find ourselves craving the warmth and heartiness that comfort foods bring. This recipe is sure to fit the bill and is an excellent way to use the birds you will harvest this turkey season.

Serves 4

Need 3 to 4 pounds of wild turkey meat on the bone

SAUCE:

3 tablespoons butter
3 tablespoons flour
1 cup cream

BISCUIT DOUGH:

2 cups flour
1 teaspoon salt
2 teaspoons baking powder
2 tablespoons butter
1 egg, beaten
1 cup milk
Coarsely ground pepper

COVER turkey in water, bring to a boil. Turn down the heat, simmer until tender. Remove meat from broth, cool, and cut into 1-inch chunks or shred if preferred. Reserve broth.

GREASE a Dutch oven or other casserole dish with a light coating of butter. Add turkey to the dish.

TO MAKE THE SAUCE, in a medium saucepan, melt butter, whisk in flour, and stir until well combined. Add 3 cups turkey broth and cream. Whisk, salt to taste, and cook until it is a smooth sauce. It will be thin but will thicken when baked with turkey. Pour sauce over turkey.

PREHEAT oven to 350 degrees.

TO MAKE BISCUIT DOUGH, combine flour, salt, and baking powder in a medium bowl and stir well. Rub 2 tablespoons butter into flour mixture until combined. Add egg and milk; mix well. Drop batter by heaping tablespoonfuls (12 to 16) over entire surface area of turkey/sauce.

BAKE for approximately 1 hour or until biscuits are nicely browned. Sauce will appear thin, but will thicken as it cools.



This recipe is from *Cooking Wild in Missouri* by Bernadette Dryden, available at most MDC nature centers. Order online at mdcnatureshop.com, or call toll-free 877-521-8632.





DISCOVER NATURE AT THE MISSOURI STATE FAIR

MDC invites you to discover nature at the Missouri State Fair in Sedalia Aug. 11–21. Visit the Conservation Building to see live fish and other native animals, including snakes, turtles, and amphibians. Learn about and see displays of native plants that help butterflies and other important pollinators. Ask MDC staff conservation-related questions, get educational materials, and have fun.

Join us Aug. 12 for Missouri Department of Conservation Day — a full day of fun and excitement sponsored by MDC! Learn more at mostatefair.com.

NEW HUNTING BOOKLETS AVAILABLE

Missouri deer, turkey, waterfowl, and dove hunters can get updated information on fall hunting from MDC's *2022 Fall Deer & Turkey Hunting Regulations and Information* booklet and *Migratory Bird and Waterfowl Hunting Digest 2022–2023*.

The fall deer and turkey booklet has detailed information on fall deer and turkey hunting seasons, limits, permits, managed hunts, regulations, conservation areas to hunt, post-harvest instructions, chronic wasting disease updates, and more. The booklet is available where permits are sold and online at short.mdc.mo.gov/Zjw.

The migratory bird and waterfowl digest has detailed information on waterfowl hunting along with hunting doves and several other migratory game birds such as rail, snipe, and woodcock. It also has information on needed permits and duck-stamp requirements, hunting seasons and limits, hunting areas, regulations, and more. The digest is available where permits are sold and online at short.mdc.mo.gov/Zjw.

Buy Missouri hunting and fishing permits from numerous vendors around the state, online at mdc.mo.gov/permits, or through MDC's free mobile app, MO Hunting, available for download through Google Play or the App Store.



WHAT IS IT? SWAMP MILKWEED FLOWER

Swamp milkweed is a perennial herb with milky sap and smooth, tall, and flexible stems. Its rounded pink flower clusters — known as umbels — are positioned at the top of the plant's stalks rather than the sides of the stems. In fact, this is what differentiates swamp milkweed from other varieties. The flowers have a delicate fragrance and bloom from June through September. Many insects visit the flowers for nectar.



The Power of People Connecting to Nature: PATHWAYS TO WETLAND CONSERVATION

STUDY FINDS
LINK BETWEEN
WETLAND USAGE,
CONSERVATION EFFORTS

by **Andy Raedeke**
photographs by **Noppadol Paothong**

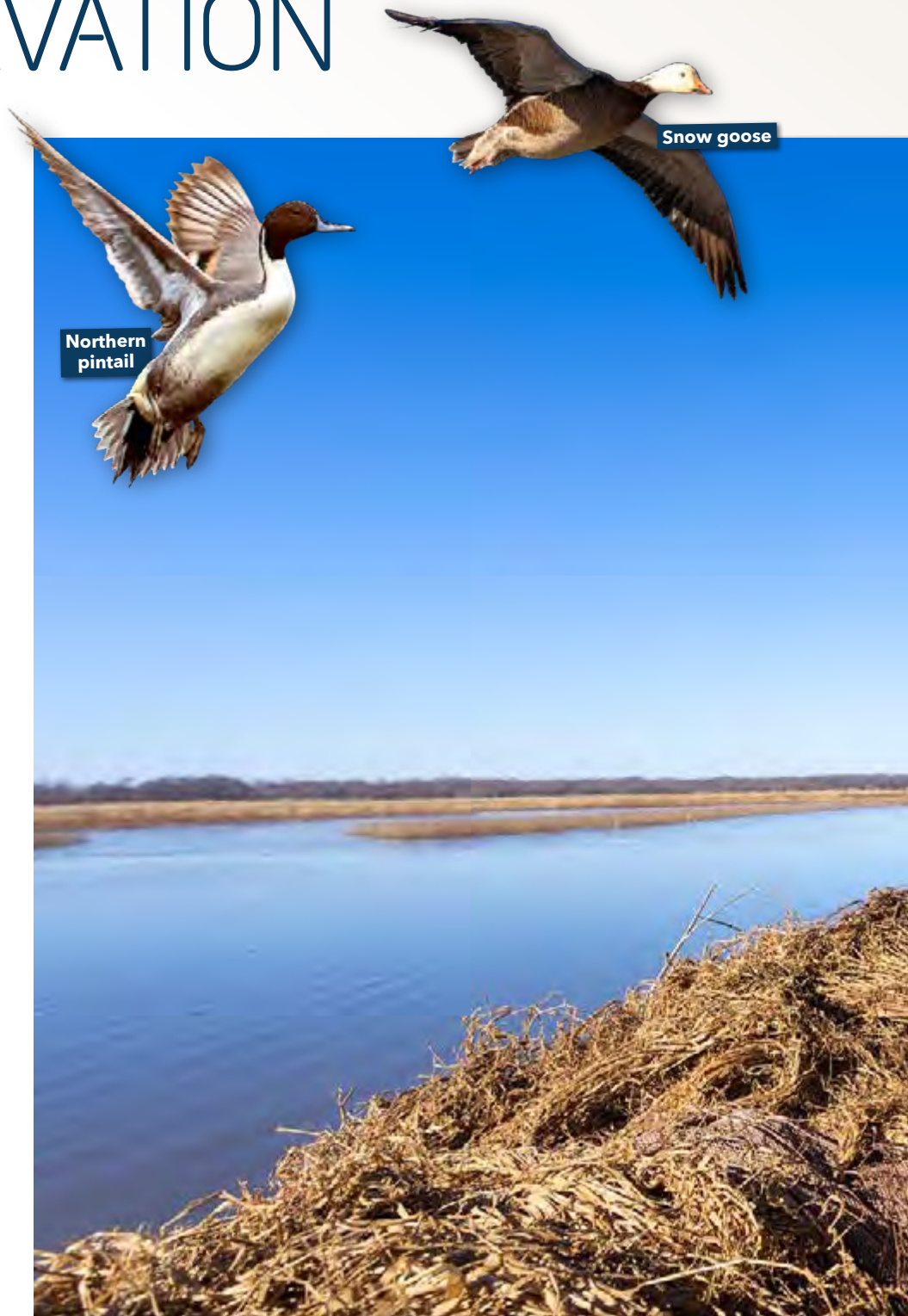
Close your eyes and take a moment to visualize your favorite place. Concentrate on the sights and sounds.

If you're like many people, the place you imagined was somewhere outdoors. And there's a good reason why: It turns out spending time in nature provides physical, mental, and emotional benefits. But what wasn't evident until recently is that making connections with wild places is just as important for nature itself.

One of the goals of MDC's Wetland Planning Initiative is to strengthen people's connections to nature. To better understand the role wetlands play in this regard, MDC surveyed 20,000 Missouri residents. Of the survey respondents, 85 percent reported that they had participated in outdoor recreation in the previous year, and 68 percent had visited a wetland. While respondents appear to be spending time in wetlands, only 19 percent participated in wetland conservation in the past year.

Paths to Involvement

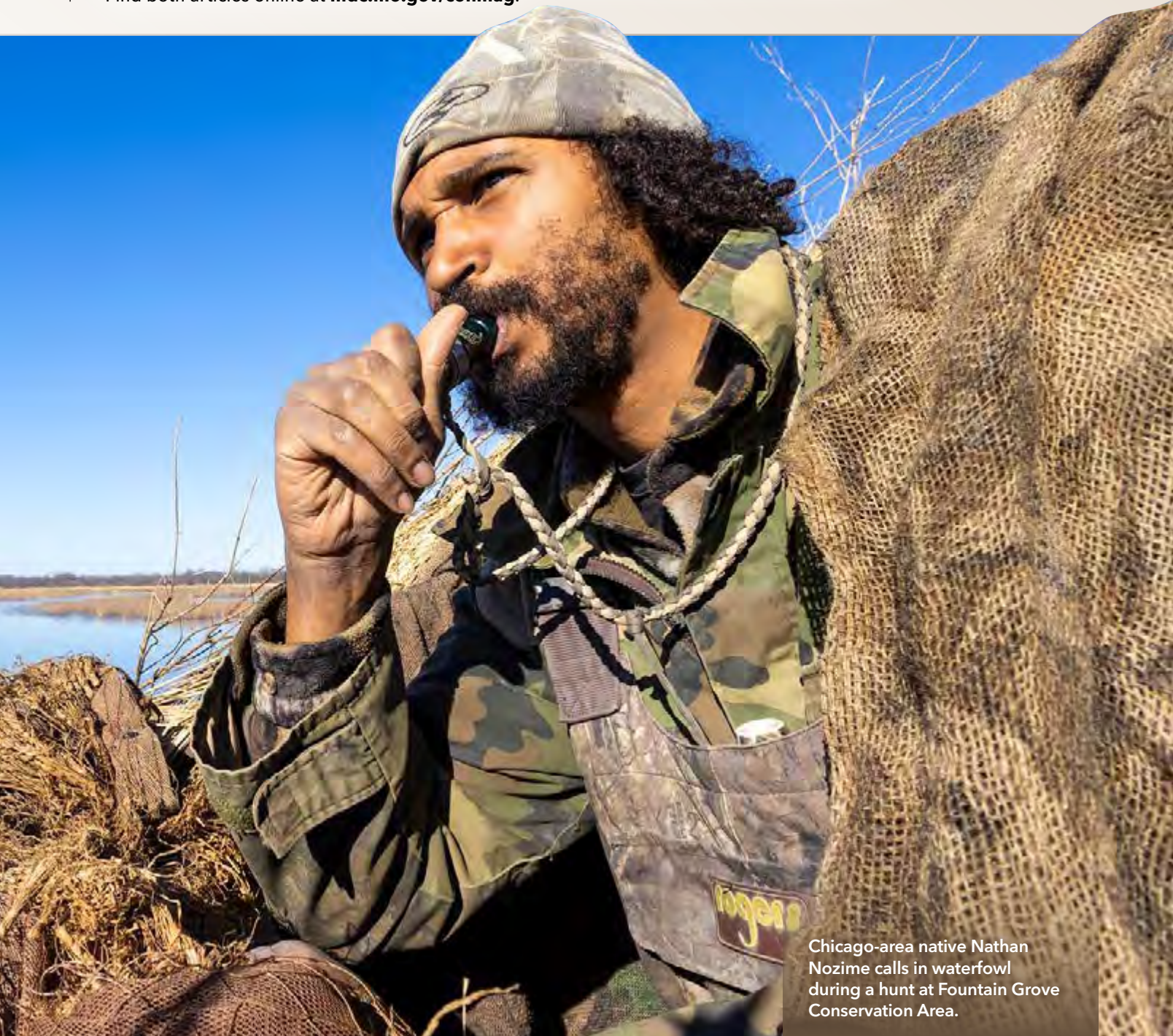
In surveying Missourians, we discovered three main paths that make people more likely to get involved in wetland conservation. First, individuals who



Focusing on Wetland Conservation

This is the third article of three highlighting a series of assessments that are the first steps in implementing MDC's Wetland Planning Initiative. The initiative is guided by a strategic guidance document, which articulates our philosophy on how we plan to approach wetland conservation in the next 25 years, and an implementation plan, which serves as an invitation to partners and stakeholders to engage with us in wetland conservation.

Before pursuing these goals, we must first understand what changes have occurred, our status, and future opportunities. We have conducted three assessments to provide this understanding: a bottomland functional assessment, a life history assessment of wetland-dependent animals, and a social assessment. This article highlights some of this important work encompassed in the social assessment. The first article, *Meaningful Connections*, appeared in the February issue of *Missouri Conservationist*, while the second, *Assessing the Wetlands*, appeared in the May issue. Find both articles online at mdc.mo.gov/conmag.



Chicago-area native Nathan Nozime calls in waterfowl during a hunt at Fountain Grove Conservation Area.



Brothers Oliver Gorski (left) and Henry Gorski turned to birding as a way to get outdoors and beat the boredom many experienced during the COVID-19 pandemic.

pursue activities that depend on the unique characteristics of wetlands are more likely to participate in wetland conservation. Waterfowl hunters are nearly five times more likely than others to engage in wetland conservation, and wildlife watchers are three times more likely than others to do so. Second, people with strong personal connections to wetlands are more likely to participate in wetland conservation. And third, individuals who are more aware of the benefits wetlands provide — such as clean water, flood mitigation, and wildlife habitat — are slightly more likely than others to participate in wetland conservation.

Involvement in conservation is especially important for Missouri's wetlands. Only 13 percent of Missouri's original wetlands remain, and landscape alterations severely affect those. Levees, dams, and other human-made changes have reduced river connections to floodplain wetlands and altered the timing, duration, and magnitude of flood pulses that create and sustain wetland habitats beneficial to fish and wildlife. We now must look for creative ways to either restore or emulate river system processes. In other words, it requires conservation.

To get a better perspective about the role wetlands play in connecting people to conservation, I spent time with several birders, hunters, and conservationists.

a morning of birding at The Audubon Center at Riverlands, located along the Mississippi River near St. Louis. Watching ducks in the distance, they shared how their mom decided to put out a bird feeder and watching birds at the feeder piqued their curiosity. Around this time, COVID hit, and they were looking for things to do. Neither of them could drive, so they talked their grandmother into taking them out looking for birds. For them, birding provided a great way to get out in nature and offered a bit of an escape. Oliver commented that it was more than just seeing birds, it was the experiences while birding that were most important. They also enjoyed the challenge and competition of seeing how many different birds they could identify.

As we walked a trail later in the morning, there were longer pauses in the conversation as both brothers reflected on what birding meant to them. After one of these pauses, Henry stopped and quietly explained that it's also about



Northern shoveler

Birding Brothers

I met high school-aged brothers Oliver and Henry Gorski for

the people. Birding was clearly something he and Oliver shared as brothers, but it also introduced them to a broader community. Their neighbor, also a serious birder, introduced them to eBird, an online program for birders. Through eBird and Discord, an Instagram group of birdwatchers in the St. Louis area, they have connected with other birdwatchers. Even while we were out, some friends they had made through birding pulled alongside to share what they had seen that morning. Now the brothers are sharing their passion by mentoring children through the Missouri Young Birders Program.

From Stares to Friendships

A native of suburban Chicago, Nathan Nozime finds duck hunting to be not only a great way to spend time in nature, but a challenge that also offers a break from the stressors of everyday life.

Following a morning of duck hunting that we shared at Fountain Grove Conservation Area (CA), Nathan discussed the awkward feeling as a young Black man entering the draw room for the first time. He imagined other hunters thinking, “Who are these clowns?” With a laugh, he recounted the time his cousin overheard someone at a party in Columbia talking about seeing rapper Snoop Dogg hunting at Fountain Grove CA.

With time, stares turned into

friendships. Nathan highlighted the many acts of kindness he has experienced at Fountain Grove CA, like the time an older hunter gave him a hunting jacket seeing that his was worn out.

One of the things Nathan values most about duck hunting is how it brings people together. To make his point, he asked if I thought the two of us — an old white guy and young Black man — would be enjoying lunch together if it wasn’t for duck hunting. Today, duck hunting provides the bond that holds many of his friendships together.

It’s too soon to know if the personal bonds to wetlands Henry, Oliver, and Nathan are beginning to forge will lead to involvement in wetland conservation, but their stories reflect the journeys taken by birder Mary Nemecek, and waterfowl hunter Renee Hahne, who are both now wetlands conservation leaders.

Battling Windmills

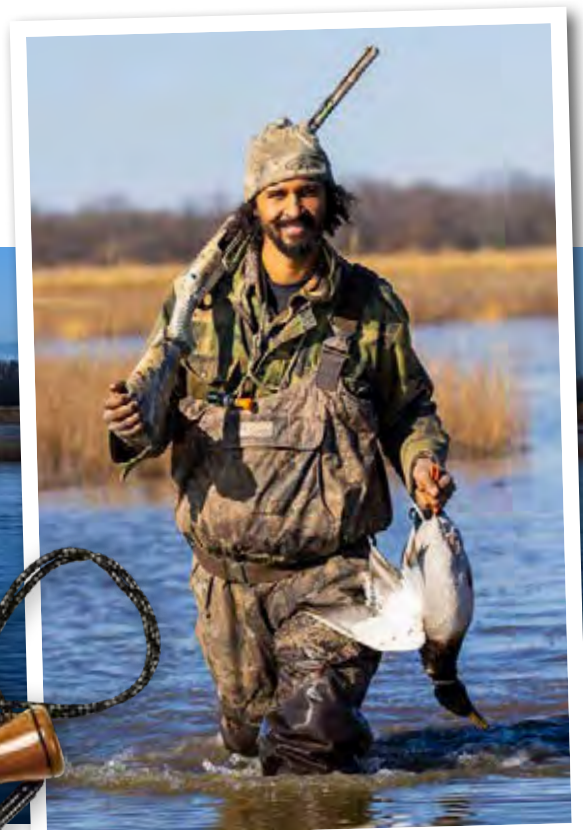
As a child growing up in the Kansas City area, Nemecek wasn’t exposed to many wildlife-related recreational activities. It was the gift of a bird feeder shortly after college that sparked her interest in birding, and this in turn started her down the path towards conservation. During a beautiful late November morning of

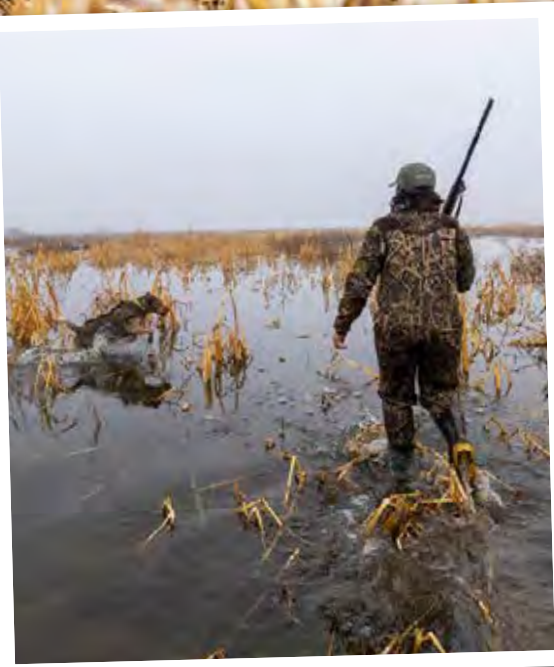
birding at Loess Bluffs National Wildlife Refuge (NWR), she pointed to the nearby bluffs and noted that an energy company had once proposed building a wind farm there. She was shocked that giant windmills may be placed in the path of the hundreds of thousands of migrating waterfowl and other birds. She sprang into action — and with others — eventually prevailed in preventing the proposed wind farm. What started out as a fight to protect Loess Bluffs NWR and the birds that depended on it turned into a vocation.

For Nemecek, conservation kept coming back to personal responsibility. “What are we doing on our watch?” she said. It was also about connections to future generations and what we’re doing for them. On a very personal level, it was about what she was doing for her 11-year-old son and ensuring he and others would be able to experience the same connections to nature that mean so much to her. Each year, Nemecek purchases two Federal Duck Stamps, one for herself and one for her son. She hopes this growing collection of stamps will serve as a reminder to him of the



Nathan Nozime puts out duck decoys (above) in predawn preparation for a successful hunt (right).





importance of personal connections to conservation. The revenues generated from Federal Duck Stamp sales are used to purchase habitat for waterfowl and other migratory birds.

Growing the Community

As Missouri's Ducks Unlimited (DU) chairperson, Renee Hahne is only the second woman to serve in the role and one of fewer than 20 women to have done so nationwide. As dawn turned to day during a duck hunt at Eagle Bluffs CA, Hahne reflected on her journey that led to her position with

DU, a journey that started with hunting and fishing at an early age near the Wisconsin River in central Wisconsin. Although Renee's dad introduced her to waterfowl hunting while in grade school, he was often away as an over-the-road truck driver. While neither anyone else in her family nor her friends duck hunted, friends of her parents stepped up to take her along, further developing her passion for the sport. Her interest in waterfowl hunting and a more general concern about water led her to obtain a college degree in limnology, the study of inland waters, and later to join DU.

Like Hahne's start in duck hunting, it was through the help of others that she navigated the path from waterfowl hunting to wetland

conservation. It was the friends that invited her to the first banquet, the Columbia DU committee members that encouraged her to volunteer, and then others who encouraged her to take on more leadership roles that paved the way for her. With excitement in her voice, she shared her vision of growing the wetland conservation community. If she could provide others the chance to become involved, and help them understand the difference they could make, she was confident that together DU members could accomplish amazing things.



Strengthening Connections

Previous research has demonstrated the benefits of spending time in nature. Simply put, if you spend time in nature, you'll likely feel better. Our survey results and the conversations with these five amazing individuals highlighted how wetlands can provide a great place to connect with nature, and as we strengthen these connections, we all have the potential to play a more active role in ensuring future generations can experience these benefits as well. I appreciated a quote Mary Nemecek shared with me, "You can't feel sorrow for something you don't know." It all starts by strengthening our connections to nature.

Did you notice the other underlying theme that emerged from the conversations? By strengthening our connections to nature, we can strengthen our connections with one another. This is more important than ever as public health experts warn we are facing a new hidden epidemic, loneliness. Research

has shown that the associated reduction in life span associated with loneliness is similar to that caused by smoking 15 cigarettes a day and higher than the mortality impacts of obesity and lack of exercise.

Now think of Henry and Oliver and the role birding has played in strengthening their bonds with one another, their grandmother, and wider circle of birders. Think of Nathan highlighting how duck hunting brings people with diverse backgrounds together. Think about Mary and all that she does with her son's future in mind. Finally, think about Renee and the trailblazing role she is playing helping grow the wetland conservation community. When strengthening our connections to nature, we also can strengthen our connections to one another.

At the start of the article, I had asked you to close your eyes and visualize one of your favorite places. Now close your eyes one more time and imagine yourself in the future. If you've never visited a



Little blue heron

wetland before, can you picture yourself making that first trip to see what you might discover and the people you might meet? If you're a birdwatcher or duck hunter, can you see yourself reaching out to take someone along? Can you see yourself finding common purpose with others helping to conserve wetlands and making Missouri a better place for future generations? Can you feel the power of people connecting to nature? ▲

Migratory Game Bird Coordinator Andy Raedeke works in MDC's Science Branch and can't think of a better place to spend time than at one of Missouri's wetlands.

An avid birder, Mary Nemecek has moved from backyard bird watching to fighting for birds and their habitats and promoting conservation.



AMERICAN BURYING BEETLE

WORKING THE NIGHT SHIFT TO KEEP NATURE CLEAN

by Angie Morfeld | photographs by Noppadol Paothong | illustrations by David Besenger





It's a warm summer night and a couple sets out on a long moonlit walk, searching for a place to dine. Instead of using the latest Yelp reviews to find the hippest hotspot with the finest cuisine, this couple uses their chemical receptors located on their antennae. You see, this is no ordinary couple — this is a mated pair of American burying beetles. And this is no ordinary dinner — it's a feast fit not for the faint of heart.

Meet the Beetles

American burying beetles (*Nicrophorus americanus*) are the largest of the carrion beetles, growing up to 1 to 1½ inches long. They are shiny black with bright orange-red bands on their elytra, or wing covers. They also have a bright orange-red patch just behind the head and a patch between the eyes.

American burying beetles are nocturnal, getting the munchies at night. Using special chemical receptors located in their orange, knoblike antennae tips, they can detect dead, rotting animals from far away. In fact, they can pick up a carcass' signal within an hour of its demise.

Their palettes are not discriminating either. Insects, mice, voles, opossums, birds, snakes, fish — they all show up on the beetles' menu.

Food Handlers

American burying beetles aren't picky when it comes to taste or size of their meal. However, size does matter when it comes to how their food is handled. Smaller, bite-sized morsels are eaten on the spot, while larger carcasses are used to nest and feed young.

Let's return to the happy couple at the beginning of our story. Their antennae alert them to a dead quail in a field, and that's where their moonlit stroll takes them. There, they may find other hopeful diners that they have to fight off, but ultimately, they come out victorious and their work begins.

Together, the male and female move their prize and bury it. This is no small feat. If the quail died on a hard piece of ground, the beetles must roll onto their



American burying beetles (*Nicrophorus americanus*), the largest of the carrion beetles, growing up to 1 to 1½ inches long, are shiny black with bright orange-red bands on their elytra, or wing covers.

backs, wiggle underneath the carcass, and use their legs to push it forward. When one beetle slides the quail off its body, the other runs to the front to take over for its partner. Millimeter by millimeter, the pair scoots the quail to softer soil for burial.

Burying beetles can move carcasses that weigh 200 times more than they do.

Race to the Grave

Nocturnal navigation becomes a race against time for this pair. The woods at night is patrolled by an army of thieves — raccoons, opossums, foxes, and coyotes — more than eager to snatch this quail for a meal. Sunrise is lurking and with it would bring scavenging vultures and squadrons of flies. The longer this quail

lays exposed, the greater the chance it would be snatched away. So, the beetles do what they do best — start digging.

Both beetles must squeeze underneath the body and use their flat, hard heads to loosen the soil and push it out from under the quail. Bit by bit, the soil beneath the quail is excavated, and inch by inch the quail sinks into a shallow grave.

On average, American burying beetles bury their carcasses about 9 inches underground. Some go-getters dig down a foot or farther.

With the quail safely underground, the beetles remove all the feathers, using their strong jaw muscles and sharp pincers. In short order, the quail resembles a plucked chicken.



Setting Up the Nursery

Working together, the beetles roll the quail into a tight ball. Then they coat the corpse with a gooey liquid from their mouths and backsides. The goo helps slow the decay of the carcass, keeping it “fresh.” The female beetle scoops out a small chamber, which will become her nursery. There, she lays her eggs, typically 10–30.

Within four days, the eggs hatch into larvae, and now the nursery also serves as baby food. The larvae feed on the carcass with help from both parents. It’s rare for an insect to care for its young. It’s even rarer for both parents to pitch in, but burying beetles aren’t ordinary insects. Both parents feed their offspring by eating some of the dead flesh and regurgitating it into the larvae’s mouths. After 48 to 60 days, the new adults emerge to feed on other carcasses and the cycle continues. Adults typically live four to six months.

(Counterclockwise from top): Male American burying beetles who meet over the same carcass will fight to claim it. The carcass is then stripped of its feathers and rolled in a ball to serve as a nursery, and eventually food, for larvae.

Community Service

American burying beetles perform a valuable service to the natural world. By burying dead animals, they help return nutrients to the soil. And by consuming dead animals, they lessen possible contact with decaying animal tissues, reducing disease among the living.

In addition, they are of great interest to science, which studies the beetles’ response to changing ecosystems. Also, by competing with fly maggots for food, they can help reduce populations of annoying flies.



Declining Populations

A hundred years ago, American burying beetles were found in 35 states, including Missouri. But, times have changed. Today, wild populations exist in only six states, and Missouri isn't one of them.

What caused the beetles' decline? Habitat loss is thought to be one cause. When people altered the landscape for farming and development, it changed the species that lived there. There were fewer animals that served as the beetles' food, even as there were more carrion feeders to compete with the beetles.

"Another major factor is thought to be light pollution," said Steve Buback, MDC natural history biologist. "American burying beetles are the only member of the genus that are nocturnal, thus affected by light pollution brought on by over-developed wild spaces."

Besides habitat change, pesticides may have played a part in the beetles' decline. As a result, the U.S. Fish and Wildlife Service (USFWS) listed the American burying beetle as a federally protected endangered species, the nation's first insect ever to receive this designation.

The Saint Louis Zoo, the USFWS, MDC, and The Nature Conservancy began working together to change that.

"The beetle was last seen in Missouri in the mid-1970s," said Bob Merz, assistant director of the Saint Louis Zoo WildCare Institute and director of the WildCare Institute Center for American Burying Beetle Conservation. "For the first decade of the 2000s, we monitored for existing American burying beetles but found none."

As a result, the zoo began breeding beetles in captivity in 2004. The first mated pairs were released on June 5, 2012, in locations across the 4,040-acre Wah' Kon-Tah Prairie Conservation Area in southwest Missouri.

Top:
Male and female American burying beetles at the release site, ready to be placed in their holes, or plugs.

Right:
A researcher holds a male American burying beetle prior to placing it into a brood chamber.



“The released beetles were paired and marked by notching their elytra — the hard, modified forewings that encase the thin hind wings used in flight,” explained Kayla Garcia, zoological manager of invertebrates for the Saint Louis Zoo. “The notches would later distinguish captive-bred from wild beetles. The beetle release process involved digging holes, or plugs, at specially selected sites, placing the carcass of a quail and a pair of notched beetles in each cavity, and replacing the plugs. This process simulated a natural underground setting for the beetles’ life cycle. The plug sites were monitored for signs of breeding activity by checking for larvae, and later, new adult beetles.”

Since 2004, the zoo is consistently breeding beetles two times a year and

reintroducing them as pre-paired mates once per year. The project has since expanded to include Taberville Prairie Conservation Area in El Dorado Springs.

“We know that our beetles are producing offspring on Wah’ Kon-Tah Prairie and that these offspring are surviving through the winter,” said Merz. “Our contribution to reintroduction efforts by returning the beetle to parts of its former range is the beginning of the recovery of this beautiful beetle.”

Due to these efforts, the American burying beetle has now been down listed from endangered to threatened by USFWS and as a nonessential experimental population under the Endangered Species Act. This means the population

has been reintroduced within its historical range, but USFWS has determined the population isn’t necessary for the continued existence of the species. As a result, this designation helps provide assurance to neighboring landowners that the reintroduction of the beetle will not impact farming and other activities and has no bearing on the delisting.

For more information about the American burying beetle and the efforts to reintroduce it to Missouri, visit short.mdc.mo.gov/4i6.▲

Angie Daly Morfeld is the editor of the Missouri Conservationist. Parts of this story were taken from Nature's Gravediggers, written by Matt Seek for the May 2015 issue of Xplor.



Researchers dig holes, or plugs, where carcasses and mated pairs are placed. These holes mimic a beetle’s natural underground setting.



Fall and Winter Hunter's Almanac



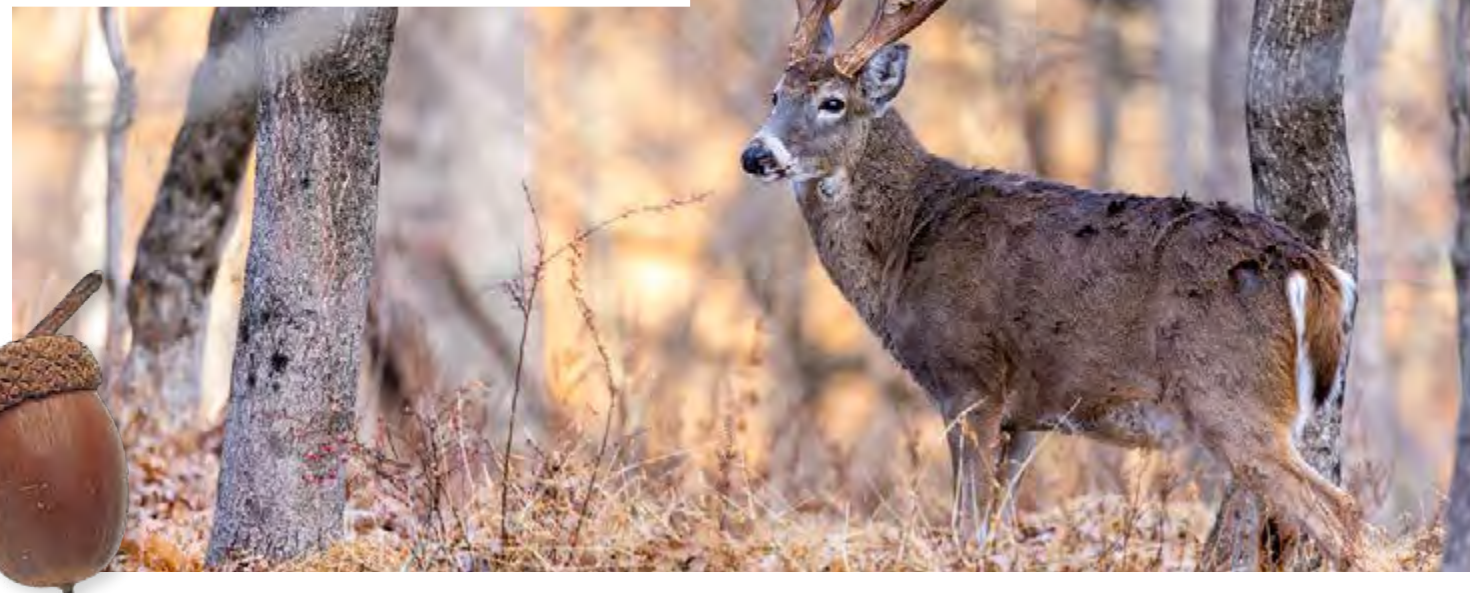
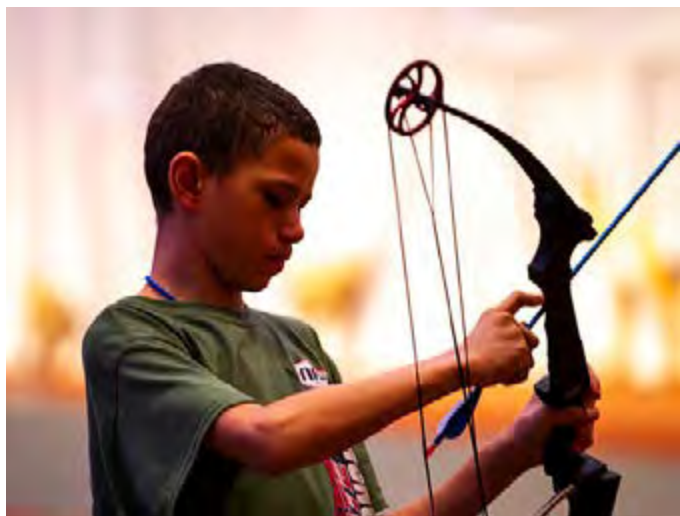
A MONTHLY TO-DO GUIDE TO HELP YOU GET THE MOST OUT OF MISSOURI'S HUNTING SEASONS

by Scott Sudkamp

One of the great things that many Missouri residents enjoy is the changing seasons. While we often joke about the weather — it's too hot or too cold or too wet or too dry — we are truly blessed with a climate that allows us to witness seasonal changes and nature's response to those changes. For many Missourians, fall and winter are the most anticipated time of the year. After several months of hot, muggy summer days, the arrival of fall heralds the promise of cool mornings, fewer bugs, and the opportunity to head afield in pursuit of game. Squirrels are actively cutting nuts and storing food, ducks begin arriving from their summer breeding grounds, whitetail bucks shed their velvet and begin making scrapes, and family groups of wild turkeys roam the woods and fields in search of the extra calories that will see them through the winter.

For most hunters, it's hard to beat the fall. No matter what game species you're passionate about pursuing, fall is a fun time. In September, habitat managers still have time to get in the field and plant food plots, run a chainsaw, and fine-tune water levels in their duck marshes. As October rolls around, days are getting noticeably shorter, and nights are getting cooler. Bucks become more solitary and start taking an interest in does and the impending breeding season. Bobwhites experience the "fall shuffle" as broods disperse and intermix to form coveys. Most fawns have lost their spots and deer fur changes from its summertime red to the thicker, more muted gray coat. The shorter days and cool nights foster a decline in chlorophyll in many plants' leaves, allowing other pigments to be expressed and offer a kaleidoscopic rainbow of colors that provide a brief but spectacular natural display that makes us want to be outside every possible moment, knowing that all too soon it will be gone.

And then comes November. Perhaps no other month is as eagerly anticipated by hunters as November. Even many non-hunters know this is the month of the whitetail rut, when does and bucks alike are liable to be seen at any time of the day. November cold fronts cause us to look to the closet for a warm coat, and to the skies for flocks of mallards setting wings over a pool and skeins of geese flying in their V formation. Bird dogs pace anxiously in their kennels, eager to crisscross the fields and fencerows in search of quail and pheasants, and stepping outside in the evening, we're likely to hear the mournful baying of a hound following the fresh track of a coon down by the creek.



Whether you're brand new at hunting or you've been enjoying it for decades, the following are some of the activities you can look forward to as summer gives way to fall:

September:

- Scout soybean fields to locate late summer/fall food sources used by whitetails.
- Dust off your shotgun, grab a shooting stool, and head out with some buddies for a dove hunt. Many MDC conservation areas offer great dove hunting. Visit mdc.mo.gov/discover-nature/places to find an area near you.
- Cool September mornings are a good time to practice shooting your bow. Aim small, miss small.
- Take some time to tune your bow to optimize your shooting. Visit a pro shop if you're not sure how.
- Scout for new hunting areas. Start with mapping apps such as *OnX* to locate likely spots, then head to the field to ground-truth those places.
- Mid-September sees the arrival of teal from their northern breeding grounds. Grab your decoys, small game permit, and Federal Duck Stamp and head out for a fun fall hunt on a local marsh or pond. Visit short.mdc.mo.gov/4S2 to see the *Migratory Bird and Waterfowl Hunting Digest 2022–2023* for relevant information.
- Sept. 15 — archery deer season begins.
- Site prep food plots to be ready for planting small grains.
- Get in the woods and scout for good acorn production, especially looking for white oaks with heavy production.
- Chiggers are still out — spray your socks and pant cuffs.



October:

- Oct. 1 — fall turkey season begins. Get out in the woods. Practice your *kee-kee* calls, bag a turkey, and do some scouting for deer and squirrels.
- Finish hanging tree stands. Be sure to check stands for worn or broken hardware, replace frayed straps, and put lifelines and tree straps in trees.
- Plant cold hardy small grains for green browse: wheat, cereal rye, triticale, barley.
- Head to the local range and sight in your rifle or check its zero. Try several different loads to find the combination your rifle likes best.
- Hickory nuts, acorns, and walnuts are maturing — head to the woods and follow some squirrels, listening for them cutting nuts. You often hear them before you see them.
- Buy your firearms deer permits.
- Oct. 15 — rabbit season opens. Bag some rabbits and cook them up using your favorite recipe or try a new one.
- Deer movement can be very good around the first significant cold front in October — be ready to capitalize on the opportunity. Grab your bow and get in the stand.
- Scout field edges and ridgelines for deer scrapes. Hang a trail camera over a new scrape to see what's using it. Cameras mounted above line of sight may be less likely to spook a wary mature buck.
- Make a mock scrape near a tree stand. Be sure to consider wind direction in choosing a location.
- Spend a Saturday afternoon shooting some clays to hone your wingshooting skills.
- Can't find ammo? Buy the components and reload your own. Talk to an MDC range instructor to learn how.
- Got a new hunter? Get them enrolled in a hunter safety course.



November:

- First two weeks of November can be magical for deer activity — get in the stand with your bow as often as you can. Or simply sit and scout.
- Continue to practice with your bow. Make any necessary last-minute adjustments with your deer rifle and ammunition.
- Quail and pheasant season opens statewide. Call a buddy and walk some fields behind the dogs.
- Want to try something different? Head afield after woodcock. These plump migratory game birds frequent damp areas such as brushy creek bottoms.
- Want to find a buck? Find the does. As does come into estrus, bucks will start cruising the timber and scent checking feeding areas.
- Do your part to prevent the spread of CWD. Don't move whole carcasses or brain/spinal tissue from counties with known CWD cases.
- Put out some trail cameras to get MRI — most recent information — on deer movement and activity. Compare to weather conditions such as wind direction, temperature, and barometric pressure. As you pattern the deer based on these factors, you'll become a better hunter.
- Whitetail deer breeding peaks around mid-November. Chasing activity — and hunting — can be very good.



Sometime between Thanksgiving and Christmas, outdoors people notice a change. The days are now very short, allowing less time for diurnal activities. For many wildlife species, this will be the most trying time of the year. Many bird species will migrate to warmer climates with more abundant food resources. Some mammal species, like the black bear, skunk, and groundhog, go into periods of extended inactivity or true hibernation, tucked away in dens underground. But for many other Missouri fauna, life must go on even when it's hard. Animals' coats by this time are dense, often with a thick underfur to insulate against the chill. Many species take advantage of sunny days resting in an out-of-the-wind patch of sunshine to absorb some solar radiation and reduce their energy expenditures. Survival becomes a delicate balance in which caloric intake must be managed against output.

But for the serious hunter, winter still offers plenty to do. Seasons are still open for a variety of game species, affording continued opportunity to get outside and engage with nature. Clear winter nights promise cold stiff fingers the following morning, but is there another time in which coffee tastes better or the sky seems bluer? Skim ice on the marsh plays a magical tune to the duck hunter breaking it as she sets out her decoys in anticipation of the morning flight. The sinking of the sun correlates with the plunging of the mercury as day gives way to twilight and frost forms on mustaches and deer rise from their beds to feed. There's still lots for hunters to do in the winter. The following are just a sample of all the possible activities one could pursue.





February:

- Go shed hunting! Keep an eye on feeding areas for dropped antlers. Trail cameras placed over food or on travel funnels can help determine when they start shedding.
- Rabbit season is still open through Feb. 15. Head out with a .22 for a skill-building challenge.
- Game trails are easy to spot. Scout now for places to hunt next fall.
- Introduce some friends to all natural, healthy, and delicious game. Cook up a pot of venison chili (or other game) and settle in to watch the Super Bowl.

Truly, there's no time as special as the days we spend in pursuit of game. As any true hunter will tell you, success in the field is measured not in inches or pounds, but in memories made, experiences had, and trials overcome. Cold weather introduces many challenges, but for many of us, there's no time of the year when hunters feel so alive. Get outside this fall and winter and start building your own treasure chest of memories. ▲

Scott Sudkamp spent 19 years as a wildlife biologist in Missouri and Texas. He currently works as a land agent for Midwest Land Group, where he uses his biological background to help clients better understand the land's capabilities and develop its potential. He's a self-described nature nerd and enjoys hunting, fishing, floating, and managing habitats.

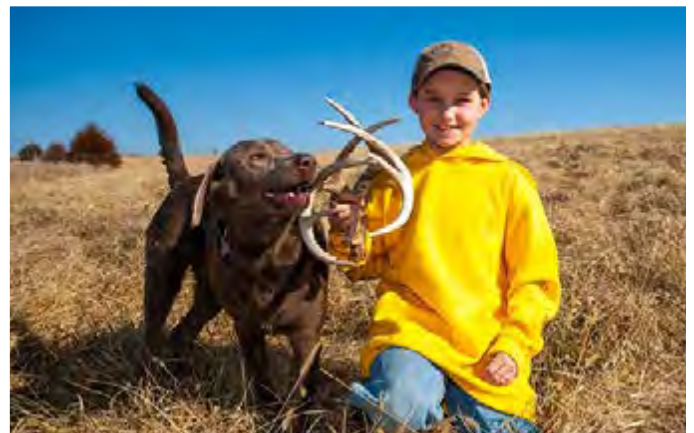
December:

- Does that didn't get bred in November will come back into estrus around mid-December. This secondary rut can provide good activity and daytime movement.
- Following bitter cold fronts, deer activity often picks up a day or two after the front as conditions moderate.
- Head to the field after a fresh snow. You'll learn a lot following sets of tracks as they move between cover and food. Pack your .22 and watch for cottontails.
- High energy foods like corn and soybeans attract many species of game. Where these aren't available, look for acorns, ragweed, and other high energy natural foods.
- As water starts to freeze, look for springs and other sources of open water for good duck hunting opportunity.



January:

- Archery deer season ends Jan. 15. Hunt over good food sources or between bedding cover and food to maximize your chances for late-season success.
- Late winter cold fronts are best spent in front of a warm fire making plans for next year's habitat improvement projects.
- Late winter is a great time to hunt coyotes and bobcats. Grab a call and sit very still for a chance at some prime late winter fur.
- Too cold to be outside? Clean your guns, fix a leaky boat, patch your waders, clean and paint your decoys, or boil a skull for a European mount.



Get Outside

in AUGUST



Texas brown tarantula

→ Ways to connect with nature

VIRTUAL

Discover Nature: The Buzz About Bumble Bees Virtual Program

Saturday • August 6 • 10-10:45 a.m.

Online only

Registration required by August 6.

To register, visit short.mdc.mo.gov/45M or call 888-283-0364.

All ages

Big and often noisy, bumblebees are found all over our state and are a lot of fun to watch. Learn about our more common species and a few of the species of conservation concern. Naturalist Jordi Raos will discuss which plants you can add to your yard to benefit bumblebees and talk about a citizen science project called the Missouri Bumble Bee Atlas.

Crawling Across the Street

Did you know Missouri is home to tarantulas? Technically, there is only one tarantula native to Missouri — the Texas brown tarantula. They make their home in southern Missouri and you may catch a glimpse of them this time of year crossing roads. They are shy by nature, so best to look and let them be.

Traveling in Packs

Purple martins arrive in Missouri in March and form large flocks in July in preparation for migration. These large flocks begin their fall migration in August, heading to warmer climates like Sao Paulo, Brazil, for the winter months. A flock of 30,000 purple martins was once recorded in Springfield. That's a lot of baggage!



Purple martins

Natural Events to See This Month

Here's what's going on in the natural world.



American badgers begin breeding



Ironweed blooms



Shorebirds migrate south

Skunks on the Loose

Young striped skunks begin foraging with their moms. To deter unwanted skunks on your property, make yards and outbuildings less accessible and attractive to them. Also, bring in pet food at night.



Striped skunk

SOUTHWEST REGION

Special Event: Insect-O-Rama

Friday • August 12 • 6:30-9:30 p.m.

Springfield Conservation Nature Center

4601 S. Nature Center Way, Springfield, MO 65804

No registration required. For more information, call 417-888-4237 or visit short.mdc.mo.gov/45Q.

All ages

Our annual celebration of insects and the important role they play in nature returns! Insects — they fascinate us, they bug us, they surround us, and they bite us. But what would a summer evening be like without them! Join insect specialists and enthusiasts for an evening devoted to discovering insects. Grab your entire family and participate in some creepy-crawly fun.

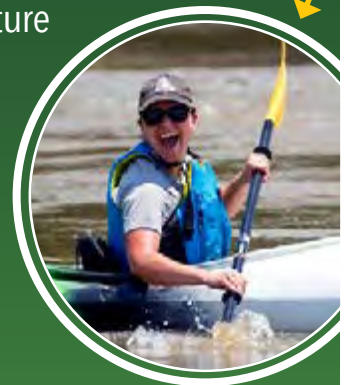
Returning Visitors

Blue-winged teal begin returning from the north and are commonly seen on marshes and in ponds and lakes, especially in open country. These dabbling ducks usually depart for spots south of the border before regular waterfowl hunting season opens.

Blue-winged teal



Interested in exploring the outdoors, but unsure where to start? It's as easy as stepping out your door! Join host **Jill Pritchard** from the Missouri Department of Conservation as she explores everything nature has to offer — from health benefits and wildlife viewing, to outdoor recreation and unbelievable conservation stories. Subscribe and get your own Nature Boost!



Download the podcast at mdc.mo.gov/natureboost

Places to Go

CENTRAL REGION

Saline Valley Conservation Area

From humble beginnings to considerable opportunities

by Larry Archer

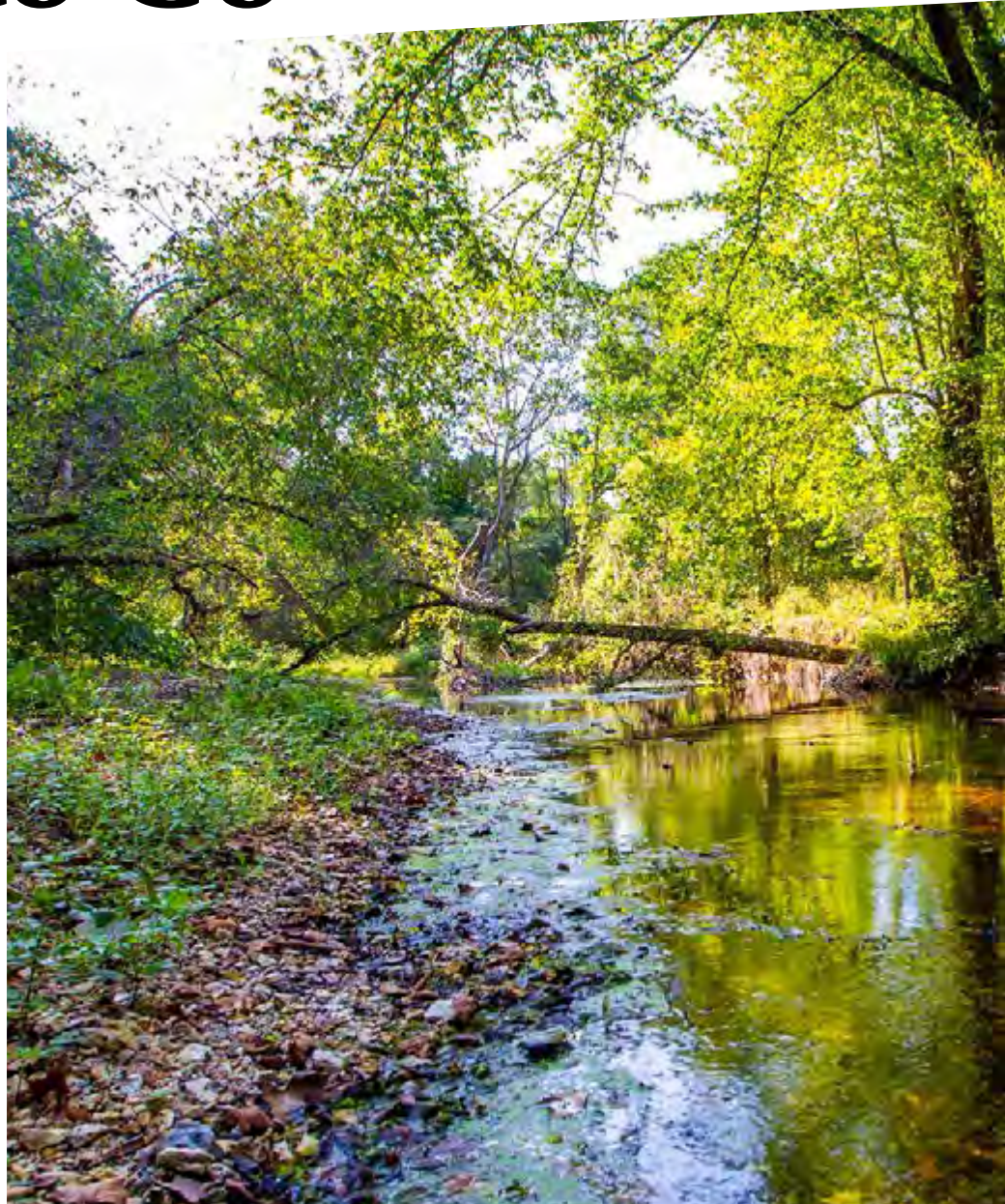
✧ Established in 1977 with a modest 292 acres, Saline Valley Conservation Area (CA) has grown to nearly 5,000 acres, with opportunities for hiking, biking, fishing, and more.

Located on 4,892 acres south-east of Eldon in Miller County, Saline Valley CA boasts a variety of habitats, ample parking, trails, and creek and river access. The habitats, which include dolomite and bottomland forests, glades, and a fen, draw a variety of birds, earning it a spot on the Great Missouri Birding Trail.

“The riparian habitat is good for attracting Louisiana waterthrushes, and the small wetland off Rock Hole Road attracts herons, the occasional bittern or marsh bird, and other wetland birds,” according to the birding trail website. “In the old fields and grassland areas, look for sparrows, grosbeaks, and meadowlarks.”

Between Saline, Jack Buster and Jim Henry creeks, and the Osage River, the area provides roughly 15 miles of stream corridor access, giving anglers ample fishing options.

Eleven small parking lots, trails, and nearly 5 miles of service roads open to year-round bike use provide easy access to all parts of the area, including King’s Bluff, a series of three 30-foot-high dolomite bluffs offering a scenic view of the Osage River.



Blue lobelia

DAVID STONNER



A series of creeks run through Saline Valley Conservation Area, providing ample opportunity for both anglers and wildlife.



SALINE VALLEY CONSERVATION AREA

consists of 4,892.2 acres in Miller County. It is 2.3 miles southeast of Eldon on Highway M off Highway 54.

38.2828, -92.4229

short.mdc.mo.gov/45r 573-346-2210

WHAT TO DO WHEN YOU VISIT



Birdwatching Included on the Great Missouri Birding Trail (short.mdc.mo.gov/45V). The eBird list of birds recorded at Saline Valley CA is available at short.mdc.mo.gov/45H.



Camping Individual campsites.



Fishing Black bass, catfish, sunfish, white bass.



Hunting Deer and turkey

Regulations are subject to annual changes. Refer to MDC's regulation page online at short.mdc.mo.gov/Zjw.

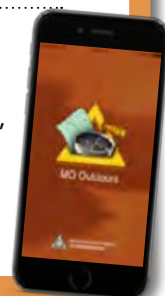
Also bear, dove, quail, rabbit, and squirrel



Trapping Special-use permit required.

DISCOVER MO OUTDOORS

Users can quickly and easily find outdoor activities close to home, work, or even while traveling with our free mobile app, MO Outdoors. Available in Android or iPhone platforms at mdc.mo.gov/mooutdoors.



WHAT TO LOOK FOR WHEN YOU VISIT



Eastern gartersnake



Common yellowthroat



Little bluestem



Summer tanager

Wild Guide



Raccoon

Procyon lotor

Status
Common

Size
Length: 21½–38 inches; tail: 5–12 inches;
weight: 6–25 pounds

Distribution
Statewide



Did You Know?

The state's raccoon population reached a low point in the 1940s due to overharvest for the animal's pelt, used for coats, collars, muffs, and trim. The population has been rebounding ever since, in part due to regulated hunting and trapping as well as an increase in suitable habitat.

Raccoons are a familiar species with their ringed tail, prominent black mask over their eyes, and stocky bodies. Raccoons prefer timbered habitat near water but may be found in urban and suburban areas. Most active at night, raccoons are curious, clever, and cunning. Their curious nature and habit of taking refuge in chimneys and attics, as well as their constant search of food, can lead to conflicts with property owners. For information on control measures, visit short.mdc.mo.gov/45J.



ECOSYSTEM CONNECTIONS

Raccoons are valuable members of the ecosystem, functioning as herbivores, carnivores, and prey. They help disperse seeds of the numerous fruits they consume.



FOODS

Raccoons are omnivores, meaning they eat both plant and animal matter, including persimmons, grasses, nuts, fish, insects, frogs, snakes, bird eggs, and much more.



LIFE CYCLE

Most breeding occurs in February, with litters born in April and May. Young are usually weaned by August but stay with their mothers until the next spring.

Outdoor Calendar

❖ MISSOURI DEPARTMENT OF CONSERVATION ❖

Free MO Hunting and MO Fishing Apps

MO Hunting makes it easy to buy permits, electronically notch them, and Telecheck your harvest. MO Fishing lets you buy permits, find great places to fish, and ID your catch. Get both in Android or iPhone platforms at short.mdc.mo.gov/Zi2.



FISHING

Black Bass

Impounded waters and non-Ozark streams:
Open all year

Most streams south of the Missouri River:

- ▶ Catch-and-Keep:
May 28, 2022–Feb. 28, 2023

Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2022

Nongame Fish Giggling

Impounded Waters, sunrise to sunset:
Feb. 16–Sept. 14, 2022

Streams and Impounded Waters,
sunrise to midnight:
Sept. 15, 2022–Feb. 15, 2023

Paddlefish

On the Mississippi River:
Sept. 15–Dec. 15, 2022

Trout Parks

State trout parks are open seven days a week
March 1 through Oct. 31.

Catch-and-Keep:
March 1–Oct. 31, 2022

Catch-and-Release:
Nov. 11, 2022–Feb. 13, 2023

HUNTING

Black Bear*

Oct. 17–26, 2022

Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2022

Coyote

Restrictions apply during April, spring
turkey season, and firearms deer season.
Open all year

Crow

Nov. 1, 2022–March 3, 2023

Deer

Archery:
Sept. 15–Nov. 11, 2022
Nov. 23, 2022–Jan. 15, 2023

Firearms:

- ▶ Early Youth Portion (ages 6–15):
Oct. 29–30, 2022
- ▶ November Portion:
Nov. 12–22, 2022
- ▶ Late Youth Portion (ages 6–15):
Nov. 25–27, 2022
- ▶ Antlerless Portion (open areas only):
Dec. 3–11, 2022
- ▶ Alternative Methods Portion:
Dec. 24, 2022–Jan. 3, 2023

Dove

Sept. 1–Nov. 29, 2022

Elk*

Archery:
Oct. 15–23, 2022

Firearms:
Dec. 10–18, 2022

Groundhog (Woodchuck)

May 9–Dec. 15, 2022

Pheasant

Youth (ages 6–15):
Oct. 29–30, 2022

Regular:
Nov. 1, 2022–Jan. 15, 2023

Quail

Youth (ages 6–15):
Oct. 29–30, 2022

Regular:
Nov. 1, 2022–Jan. 15, 2023



Rabbit

Oct. 1, 2022–Feb. 15, 2023

Sora, Virginia Rails

Sept. 1–Nov. 9, 2022

Squirrel

May 28, 2022–Feb. 15, 2023

Teal

Sept. 10–25, 2022

Turkey

Archery:
Sept. 15–Nov. 11, 2022
Nov. 23, 2022–Jan. 15, 2023

Firearms:

- ▶ Fall: Oct. 1–31, 2022

Waterfowl

See the Migratory Bird and Waterfowl
Hunting Digest or visit short.mdc.mo.gov/ZZx
for more information.

Wilson's (Common) Snipe

Sept. 1–Dec. 16, 2022

Woodcock

Oct. 15–Nov. 28, 2022

**Only hunters selected through a random drawing
may participate in these hunting seasons.*

For complete information about seasons, limits,
methods, and restrictions, consult the *Wildlife
Code of Missouri* at short.mdc.mo.gov/Zib.
Current hunting, trapping, and fishing regulation
booklets are available from local permit vendors
or online at short.mdc.mo.gov/ZZf.



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Take a note from this bumblebee, visiting the ball-shaped flowers of a buttonbush, an ornamental shrub. It is not too late in the season to enjoy the wildflowers and ornamental trees and shrubs that beautify the landscape. Get out and take it in! What will you discover?

📷 by **Noppadol Paothong**